



The effectiveness of an early intervention team in the treatment of first-episode psychosis

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Objective

To compare clinical practice and treatment effectiveness in patients managed by an early intervention (EI) team, and a general adult mental health team, and explore implications for service delivery.

Methods

A retrospective file audit was conducted comparing the treatment of two groups of 20 first-episode patients before and after the establishment of an early intervention team.

Results

EI patients had significantly higher levels of interaction with staff and were more likely to receive atypical antipsychotic medication, though at equivalent peak dosages. Both groups improved clinically with reduced symptoms and improved psychosocial functioning at the end of the six month follow-up period, however symptom improvement was significantly greater for the EI group.

Conclusions

The findings suggest that stand-alone EI teams offer improved clinical effectiveness over standard care.

Keywords

early intervention, first-episode psychosis, effectiveness, psychosocial functioning, outcome

Introduction

The strategies for early intervention in the first episode of psychotic illness arise from diverse origins including preventive medicine, developmental and community psychiatry. They exist in a climate of renewed enthusiasm about the natural course of psychosis and our ability to treat it. The prospect of early detection and resolution of first-episode psychosis is now tangible, if not yet fully achievable. These influences have led to the widespread introduction of specialised EI teams in Australia. These teams, and the one referred to in this paper have tended to be modelled on the principles of The Australian Clinical Guidelines for Early Psychosis (National Early Psychosis Project, 1996). However, with few exceptions the clinical effectiveness of such teams has not been assessed.

While the recognition, assessment, and treatment of young people in a prodromal state is now occurring (Yung & McGorry, 1997), most clinical work focusses on early detection, and aggressive intervention during the 'critical period' (Birchwood & Macmillan, 1993; Birchwood, McGorry & Jackson, 1997; Birchwood, Todd & Jackson, 1998) of the first two to five years of a psychotic illness. These clinical directions result from studies showing that a duration of untreated psychosis (DUP) greater than one year (Johnstone, Crow, Johnson et al., 1986; Loebel, Liebermann, Alvir et al., 1992; Larsen, McGlashan & Moe, 1996; Linszen, Lenior, Dettaan et al., 1998;), may be associated with a less complete and delayed treatment response (Loebel et al, 1992; Haas, Keshaven & Sweeney, 1996; Symanski, Cannon, Gallacher et al., 1996).

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This provides a rationale for earlier detection. Secondly, Bleuler (1968), and later Carpenter and Strauss (1991) and Eaton, Thara and Federman (1995) identified that many patients reach a plateau of psychopathology and disability some years into their illness course without further deterioration or improvement. While this data argued against the progressive deterioration in Kraepelin's view of schizophrenia, it also suggested that the expectation of functional and symptomatic recovery were limited after this period of illness. Thus assertive treatment designed to reduce positive symptoms and restore social and vocational status during the critical period (Birchwood et al., 1998), is suggested to have disproportionately beneficial long-term effects by improving symptoms and disabilities that might otherwise become chronic.

The purpose of this study was to examine in what ways the management by an early intervention team differed to standard clinical practice and, if so, did this affect the outcome of young people with a first-episode psychotic illness?

Method

Participants and procedure

The study design is a retrospective file audit. Files of patients aged from 15 to 30 years, who presented or were referred to two Community Health Centres (CHCs) in western metropolitan Sydney with their first-episode of psychotic illness, were reviewed. This age range was designed to capture the peak age of onset of first-episode psychosis. Equal numbers of patients (n=20) were selected sequentially from case registers from two periods, one before (the Pre-EI group), and the other after (the EI group) the introduction of the EI service.

All patients presenting with psychotic symptoms (defined as the presence of hallucinations, delusions, disorganised behaviour or thought disorder) within the defined age group were considered, regardless of their specific diagnosis. This allowed for the therapeutic and clinical problems associated with making a diagnosis at first presentation. Patients were excluded if they

had received previous treatment for a psychotic illness, or if a clinically significant organic brain syndrome was present. They were not excluded for receiving treatment for non-psychotic disorders. The Pre-EI group was recruited from referrals made between 1/7/95, until 1/7/96. The EI group participants were recruited from 1/7/98, as this was when the EI team first had stable staffing and consistent procedures, to 1/4/99.

Of the Pre-EI group, at the first study site (Area A) 47 referrals were detected within the target age range. Ten subjects met inclusion criteria and 30 were excluded, most commonly due to patients having received previous treatment for a psychotic illness. Seven possibly suitable files could not be located. At Area B, 35 patients were identified, and 25 were excluded for similar reasons. All EI group participants were sourced from referrals to the EI team between the dates described. The EI service had received a total of 60 referrals during the study period, 20 subjects met study criteria, with almost all excluded patients having affective or other non-psychotic diagnoses, with a smaller number excluded for receiving previous treatment.

The Pre-EI patients were managed by the general adult mental health team at both sites. It was estimated that each staff member managed between 25-30 adult patients, at different illness stages of a variety of psychiatric disorders. Staff provided crisis or 'walk-in' assessment including a 24-hour emergency service, as well as case management. Patients were seen by a psychiatric registrar or consultant from the local psychiatric hospital, with only hospital assessment available in the event of an acute deterioration.

The EI service consisted of two psychiatric nurses and two intern psychologists. They managed approximately 15 patients each, in a manner best described as 'assertive case management'. They did not have the responsibility for acute assessment and management of new referrals, which was instituted by the adult mental health teams. The frequency of review was dependent on the severity and stage of illness, and patient preference. Medical reviews were provided by a psychiatric registrar with the ability to monitor a

patient at the CHC or at home if required. A weekly case presentation and case-review meeting was held by the multi-disciplinary team, with the registrar and a consultant psychiatrist present. A group psycho-educational program was provided by the team to all families of young people with their first episode of psychosis.

Subjects' files were examined for the six-month period from their time of referral. For those patients who were admitted to the local psychiatric hospital during the follow-up period, the hospital file was reviewed, while if they were admitted to another hospital, the discharge summary was reviewed. If information was insufficient to make a clinical judgement, it was recorded as so in the results.

Assessment and statistical analysis

A range of variables was assessed including: the number of admissions; antipsychotic medication practices (peak dosage, use of atypical and depot medications, and use of other treatments); frequency of referral to a vocational, educational or structured day service; involvement of the General Practitioner (GP); number of patient's linked with a case manager; number of service contacts in the community, family involvement; and service status at the end of the study period.

When a patient was referred to the community team from an admission ward, medication and other data were used in the study, but they were not counted as having 'an admission' for the purposes of the study. Contact with the GP was rated if any communication took place between the service and GP in relation to management. A referral to the service with no feedback or a discharge summary being sent did not in isolation qualify for a positive rating.

Change in symptom severity was rated using the *Clinical Global Impression Scale* (Guy 1976). Psychosocial functioning was rated by an operationalised scale (developed by the authors) at the start and finish of the rating period (see Table 1). This was used because most existing scales require information that would be difficult to extract from a file audit.

Table 1. Psychosocial function rating scale

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|----|--|
| 0. | Poor self-care and/or no educational, work, or relationship functioning. |
| 1. | Moderate impairment of functioning; main contacts are health-service related. |
| 2. | Mild impairment in functioning; needs service support but able to work or study part-time. |
| 3. | Independent in psychosocial functioning. |

Results

Demographics

Almost three-quarters of the study participants (29/40) were male. There was a difference in gender composition with the Pre-EI group having only 4/20 females against 11/20 in the EI group ($\chi^2=5.24$, $df=1$, $p<.05$). The mean age for the two groups was 21.45 years (EI=22.6 years, Pre-EI=20.4 years, n.s.).

Treatment

There were six patients admitted to hospital from the Pre-EI group during the study period. One was re-admitted once and another five times. In the EI group three patients were admitted and only one required re-admission.

As expected from the treatment model, EI patients were more likely than Pre-EI patients to be assigned and interact with a case manager. Both 'in person' (17 versus 9, $t=-3.29$, $df=38$; $p<.01$) and 'other' (31 versus 8, $t=-4.43$, $df=38$; $p<.001$) contacts (for example telephone calls) showed significant differences between the groups.

Antipsychotic medication was prescribed for 34 of the 40 patients (17 in each group). The average peak daily dose patients received in chlorpromazine equivalents (CPZe mg) (Bazire, 1998; Herz, Liebermann, Liebermann et al., 1997; Galletly & Tsourtsos, 1997; Kane, 1996) was not significantly different between the groups (377mg for the Pre-EI versus 348 mg for the EI group, n.s.). With peak levels around 350mg CPZE, neither group was managed with a low-dose regime (Remington, Kapur & Zipursky, 1998). Trials of an atypical

antipsychotic were almost universal in the EI group (16/17), compared to only three of 17 Pre-EI patients. Depot medications were used infrequently in both groups (one patient in each). Three patients from the Pre-EI group and two from the EI sample required intramuscular benzotropine.

Electro-convulsive Therapy was administered to two Pre-EI patients and none from the EI group. Regular benzodiazepines were used for two Pre-EI patients, and one EI patient. Three patients in each group received antidepressants and two and three patients respectively were prescribed mood stabilisers. Some patients received more than one additional treatment. Mood stabilisers were only used in patients with features of mania or hypomania, not for augmentation.

Half (ten) of the Pre-EI group had no documented referral to an age-appropriate psychosocial program. This is in contrast to the EI group where 18/20 patients were referred to these programs, and 14 were referred to two or more agencies. The active participation of GPs in management or follow-up was equally low for both groups (two and three patients respectively).

Family involvement in treatment was far more likely to occur in the EI group with 16/20 of patient's families involved in psycho-education, significantly greater than 7/20 in the Pre-EI group. Similarly, assessment and intervention to address family communication difficulties was greater for EI patients than for Pre-EI patients (10/20 versus 1/20).

There was no significant difference after six months in patient retention within the service. In both groups, 85% of patients remained under the care of the service. While numbers were small, the EI group formally closed two patients with full symptom resolution. Three Pre-EI and one EI patient refused service or were lost to follow-up.

Outcome measures

Clinical Global Impression (CGI) mean scores were used to measure the severity of illness. There was no significant difference between the

Pre-EI and EI groups at the start of the study period (4.65 versus 4.5, $t=0.42$, $df=38$, n.s.). Both groups improved significantly over the course of the study (Pre-EI: 3.39 $t=4.42$; $df=18$, $p<.001$; EI: 2.6 $t=6.19$; $df=19$, $p<.001$), but at six months the EI group improved significantly more than the Pre-EI group ($t=2.08$, $df=36$; $p<.05$).

At base line mean scores of psychosocial functioning did not differ between the groups (Pre-EI=0.7 versus EI=0.8, $t=-0.44$, $df=38$, n.s.). Both groups improved significantly over the six months of treatment (Pre-EI mean=1.44, $t=-3.76$; $df=17$, $p<.01$; EI mean=1.85 $t=-4.472$; $d.f.=19$; $p=0.000$), however at six months a trend existed towards greater improvement in the EI group.

Discussion

Clearly the study has a number of limitations and biases. It is a retrospective, naturalistic study, and thus randomisation was impossible. Despite admission into the study being based on consecutive referral to the service, the groups differed significantly in gender composition, perhaps biasing the EI group to better outcomes (for example, women with a diagnosis of schizophrenia have been noted to have a better outcome than men in a number of domains, see Vazquez-Barquero, Cuesta, Castenado et al., 1999; Harrison, Croudace, Mason et al., 1996). It was felt important to utilize consecutive admissions however to minimize treatment differences. The psychosocial functioning scale was generated for the study by the authors, and thus has not been formally tested for reliability and validity. Another important limitation is that both authors have worked with the EI team, one (MS) over the period of the study.

A difficulty arose in the detection of files of some patients for the Pre-EI group. These were most commonly of the patients who had only a brief interaction with the service. It is possible that those patients had a less severe psychiatric illness, with more severely ill patients being included in the study. The more intensive EI approach seemed also to be reflected in more comprehensive documentation, focussing on EI objectives such as family education, within a structured management plan, making it easier to

clearly document treatment strategies in this group. Atypical antipsychotic medications were only widely introduced in Australia in the time between sampling the two groups.

Patient's symptoms and functioning significantly improved over the six month period irrespective of which treatment model was utilised. However, patients treated by the EI team had improved significantly more than the Pre-EI group, with a greater reduction in symptoms, and a trend for a greater improvement in psychosocial functioning. This finding may have been confounded by the gender imbalance between the two groups. As noted earlier, significantly more female patients were in the EI group, possibly improving their overall outcome.

Contact rates suggested a more personal relationship between staff and patient for the EI group, as would be expected with a focus on engagement. Assigning patients a 'case manager' for individualised follow-up, service coordination and access to services has also been a method of improving continuity of care. High rates of case manager assignment and involvement with their patients were seen in both groups. This was not reflected in rates of involvement with GPs with extremely low rates in both groups. GPs often have an excellent understanding of family and cultural issues, and can provide follow-up in a low stigma environment. In addition, patients will often turn to the GP for assistance at the onset of illness (Lincoln and McGorry, 1995). This study suggests that GPs are a vastly under-utilised resource in the treatment of a young person's first psychotic episode, including within the EI service.

Not surprisingly, there was a high utilisation of atypical medications in the EI group compared to the Pre-EI group which is an indication of altered treatment practices within the EI team, and drug availability. This change in practice may have contributed to the lower level of symptomatology found in the EI group after six months, through improved adherence with treatment as a benefit of more effective engagement with the patient by EI staff and lower levels of side effects experienced on atypical antipsychotics. Peak doses often

occurred during inpatient admission where care was not the responsibility of the EI team, and thus average doses through the study period may have been a better measure. Finally, as would be suggested by the Clinical Guidelines for Early Psychosis (National Early Psychosis Project, 1996), there was a low rate of depot utilisation rates in the first six months of illness, in both the Pre-EI and EI groups.

The study found no differences in the levels of other medications being used, although numbers were small. This observation, combined with above data on peak antipsychotic doses, suggests that benzodiazepines had not been utilised in an antipsychotic sparing capacity. Five cases from the combined treatment group required intramuscular benztropine. Fewer dystonic reactions might be one benefit of using low-dose regimes. Few patients were being treated with antidepressant medications in either group, implying either a low rate of depression or more likely a failure to diagnose and treat co-morbid depressive episodes.

A psychotic episode may threaten a patient's self-concept, and occupational and social goals. An optimistic focus on meaningful, goal directed activity, appropriate to the phase of illness is important (Birchwood et al, 1997), and can be assisted by the use of structured outpatient day programs, or vocational and educational services. Despite little or no change in the range of services available, the number of referrals to different services was consistently and significantly raised in the EI group, although we do not have data about the effectiveness of those interventions. On a practical level in young adults our team has treated, it has been particularly important to offer a graded return to social activity, through groups, outings, or a progressive return to educational or vocational activities.

Significant differences in practice were evident with respect to family involvement in treatment. With this being a key focus for EI work, it was not surprising that the EI group provided significantly more family education and interventions aimed at reducing *Expressed Emotion* (EE). However, in both groups psychoeducation was performed more frequently

than EE reduction strategies. This may be a result of lingering concerns about confidentiality issues, in addition to other factors such as education and training, and the time involved to implement these therapies.

Conclusion

This study has been able to demonstrate positive benefits for young people with their first episode of psychosis from services provided by an intensive, community based, early intervention program, when compared to treatment from a general community mental health team over the initial six months of care. Whether these findings justify the increased allocation of resources to deliver such an intensive and comprehensive service will require further long-term study. Similarly, whether these improvements persist after the cessation of intensive intervention, and the effects of discharge from such services, need to be investigated. Part of the solution to this problem may lie in shared care programs with general practitioners and enhancing the knowledge and skills of families and caregivers, particularly so that psychological interventions provided by EI teams are reinforced. In this way the beneficial effect of EI services might be extended beyond the initial intensive contact period.

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